

# PHENIX WEEKLY PLANNING



1/12/2012

Don Lynch

TECHNICAL  
SUPPORT  
2012

## This Week

- Continue RPC1 N & S commissioning
- Complete VTX/FVTX LV, HV, signal, fiber and thermocouple installation and plumbing
- Complete White/Blue sheets (Pink finished last week)
- Continue prep for run 12
- Shielding in RPC3 area (install rails and extended shield)
- Prep for Cosmic Ray Tests
- Move shield wall to test fit then park in near closed position
- MuTr S flowmeter upgrade
- Install MPC electronics Racks
- Start PHENIX run 12 shifts
- Start flammable gas flow

## Next Week

- Martin Luther King Day - lab holiday, lab closed (Monday 1/16/12)
- Continue RPC1 N & S commissioning
- VTX/FVTX LV, HV, signal, fiber and thermocouple installation and plumbing verification and commissioning
- Cosmic Ray Tests
- MuTr S flowmeter upgrade
- Install MPC electronics Racks ????
- Close shield wall - IR access limited
- Run 12 cooldown
- End of shutdown/start of run party Friday 1/20/12 noon-2:00

## TECHNICAL SUPPORT ZONE

- CM alignment stops
- Upgrade AH crane
- MPC electronics rack upgrade installation
- IR run prep, Pink/Blue/White sheets
- New and upgraded full detector commissioning
- Run 12 cooldown

Done

After 1/17/2012

In Progress

Done ??

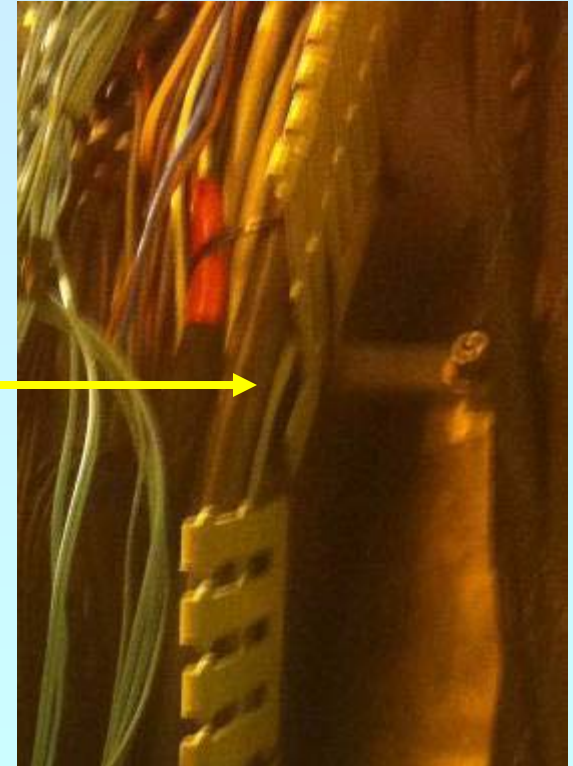
In progress to 1/16/2012  
1/17/2012

## VTX/FVTX Tasks

- FVTX/VTX cable routing, plumbing, QA tests
- FVTX/VTX final electrical/fiber/plumbing/monitoring installation
- FVTX connector restraint

2011 Shutdown

In progress  
In progress  
Done and tested successfully



## RPC Tasks

- RPC1 north and south commissioning
- RPC3 Shielding
- RPC Hodoscope



In progress

Large Blocks placed Rail extensions for  
garage in progress  
Done except controls



- Commissioning

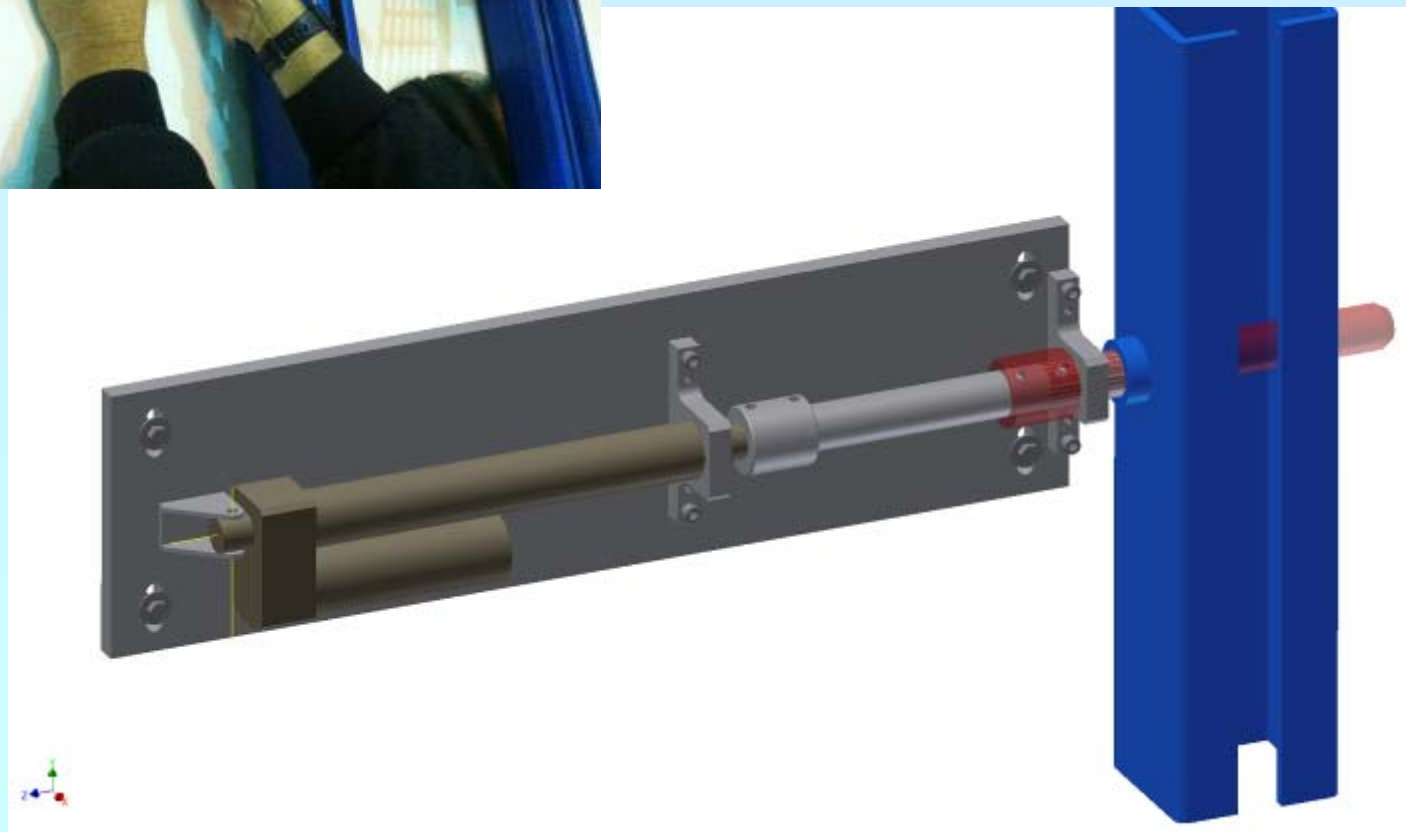


TECHNICAL SUPPORT ZONE





Window Washer Safety Pins:  
Remote insertion/retraction





- MPC electronics replacement
  - Build racks Done
  - Install & wire racks In Progress
  - Test 1/31/12
- RPC hodoscope installation
  - Run cables Done
  - Controls/Test 1/31/12
- Run 12 restoration of detectors
  - Pink/White/Blue Sheets Done??
- VTX restoration
  - Reinstall cables, fiber, cooling, monitoring Done
- FVTX installation and cabling
  - Racks: assemble, test, install on bridge Done
  - Fiber: install, terminate and connect Done
  - LV sensor and wedge: fabricate, install, terminate and connect Done??
  - Test connections and controls 1/31/12
- Other ??? 1/17/2012

# Miscellaneous Gas & Cooling System Tasks

TECHNICAL SUPPORT 2012

- Replace MuTr flowmeters (north and south)
- Replace tygon lines (80 lines) from the cooling manifolds to the detector with 1/4" ID teflon tubing.
- Insulate whatever Big Wheel chiller lines in the IR that we can get to to reduce sweating in the IR.
- Build a system to clean the Novec during the run.
- Pixel cooling upgrade for 10° C without impacting strip-pixel cooling.
- Replace all cooling RTD transmitters
- MuID panel circulation. Class one div 2 fans.
- Other

north done, south postponed to 2012 shutdown

Done

Done except distribution lines: to be insulated after leak checks  
System Built Needs to be integrated into NOVEC system

Done

Done

Done?

???

PHENIX CUMULATIVE FLAMMABLE GAS LEAK RATE FOR RUN 12								
1/10/2012								
DETECTOR	TOF.W	DC EAST	DC WEST	PC EAST	PC WEST	RPC	Muld South	Muld North
GAS MIX	R134a/iso/sf6	Ar:C2H6	Ar:C2H6	Ar:C2H6	Ar:C2H6	R134a/iso/sf6	CO2:lc4h10	CO2:lc4h10
	92/5/3	50/50	50/50	50/50	50/50	95/4.5/0.5	91/9	91/9
Percentage of Flammable gas	5.0%	50.0%	50.0%	50.0%	50.0%	4.5%	9.0%	9.0%
FLAMMABLE GAS COMPONENT	iso	ethane	ethane	ethane	ethane	iso	ISObutane	ISObutane
LPM								
DETECTOR LEAK RATE OF MIX	0.02	0.35	0.36	0.012	0.008	0.1	0.71	0.85
LEAK OF FLAMMABLE GAS	0.001	0.175	0.180	0.006	0.004	0.005	0.064	0.077
	x							
TOTAL CUM FG LEAK (lpm)	0.511	All flows in liters per min						
TOTAL CUM FG LEAK ( SCFH)	1.08							
For More information Please contact Rob Pisani, <a href="mailto:pisani@bnl.gov">pisani@bnl.gov</a>								

# PHENIX GAS SYSTEM Usage and leak rates Run Y12

by Robert Pisani

15-Jan-12

For more information please contact me at [pisani@bnl.gov](mailto:pisani@bnl.gov)

	Mixture	%	Volume in liters	Input Flow rates (lpm)	Input if Recirculating	Total leak Rate (lpm)	Flammable Leak Rate (lpm)
TEC	Ar/CH4	90/10	6000	0.000	0.000	0.000	0.000
TEC/TRD	Xe/He/CH4	45/45/10	6000	0.000	0.000	0.000	0.000
DC	Ar/C2H6	50/50	6000	12.000	XX	0.710	0.355
PC	Ar/C2H6	50/50	850	4.700	XX	0.020	0.010
MuTR	Ar/CO2/CF4	50/30/20	3000	10.000	6.000	4.000	0.000
MuID	CO2/C4H10	91/9	50000	25.000	XX	1.560	0.140
RICH	CO2	100.000	80000	2.000	XX	0.400	0.000
He Bag	He	100.000	9060	0.000	XX	0.000	0.000
TOF West	R134a/C4H10/SF6	92 / 5/3	225	0.625	0.625	0.020	0.001
RPC	R134a/C4H10/SF6	95 / 4.5/0.5	625	6.000	0.000	0.100	0.005
TRD Purifier	Ar/H2	95 / 5	0	0.000	XX	0.000	0.000
HBD	CF4	100.000	400	0.000	0.000	0.010	0.000

Detectors in green no longer used

SUM

0.511

in lpm	Total usage	Total usage with Recirculation	Total Leak into IR
Argon	13.350	11.350	2.365
Methane	0.000	0.000	0.000
Ethane	8.350	8.350	0.365
Isobutane	2.258	2.281	0.141
CF4	2.000	1.200	0.800
Co2	27.750	26.550	3.020
He	0.000	0.000	0.000
N2	250.000	250.000	
SF6	0.049	0.049	0.001
R134A	6.275	0.563	0.018
H2	0.000	0.000	0.000

## Total Weekly Usage When Running in Liters

Argon	114408
Methane	0
Ethane	84168
Isobutane	22995
CF4	12096
Co2	267624
He	0
N2	2520000
SF6	491
R134A	5670
H2	0



MPC  
new  
electronics  
racks

## Looking Ahead to the 2012 Shutdown

### Major Projects:

- Remove VTX/FVTX
- Repair upgrade, test, reinstall VTX/FVTX
- Remove/Repair/Upgrade MuTr Station 1 South
- Station 2 South (north side) upgrade
- Station 3 North and South (upper half)  
re-capacitation and air manifold upgrades
- RPC stations 1 and 3, north and south maintenance
- Other detector maintenance as required
- Infrastructure maintenance as required
- TBD prototype tasks

TECHNICAL  
SUPPORT  
2012

# Infrastructure Issues

TECHNICAL SUPPORT ZONE

- Roof leaks in utility bathroom at northwest corner behind tech offices, over door between rack room and assembly hall, over door between control room and elect. ass'y room, southeast corner of IR and laser room.

- Flooding in AH/ Driveway heaving



- Electronics test/assembly room-to-parking lot door (does not open/close/lock properly - needs to be replaced)





## 1. Annual PHENIX Safety Review Action Items:

- Consult with Levesque and Kretschmann about the vertex detectors fiber optics bundles from the fire loading perspective (Kretschmann Jan 15, 2012) ???
- Review to assure all power supplies are NRTL equivalent compliant and affix respective labels (Giannotti Jan 15, 2012)
- Provide the new flammable gases leak rates (Pisani, Jan 15, 2012) Done
- Provide the updated gas usage quantities (Pisani Jan 15, 2012) Done
- Consult with Phillips whether the FR134 is likely to be sucked into the gas mixing house should a leak develop in the shed Done
- Carry out the Blue Sheeting Done
- Provide the calculations for the gas shed (Lynch, ~~Pisani Jan 19, 2012~~) Phillips
- Provide updated sweep procedures (Sampson Jan 15, 2012) ???
- Carry out an inspection of the installed platform gates (Cirnigliaro Jan 10, 2012) ???



## 2. Annual PHENIX Safety Review Additional General Action Items:

- Update the PHENIX ECR. (Craner, Jan 15, 2012) ???
- Update the PHENIX work plan (Cirnigliaro Jan 10, 2012) ???
- Carry out a magnetic safety review (Phillips Jan 15, 2012) ???
- A walk through of the PHENIX detector prior to introduction of flammable gas. (Makdisi / Etkin et al Jan 10, 2012)
- Update the documented work procedures. (Lynch Continuing from last year)
- Establish trained PHENIX watch shifts. (O'Brien Jan 10, 2012) (Done)
- Review and update the PHENIX emergency procedure if necessary (Makdisi Jan 10, 2012)

## 3. Post shutdown project review (PHENIX Engineers & Techs): to be scheduled

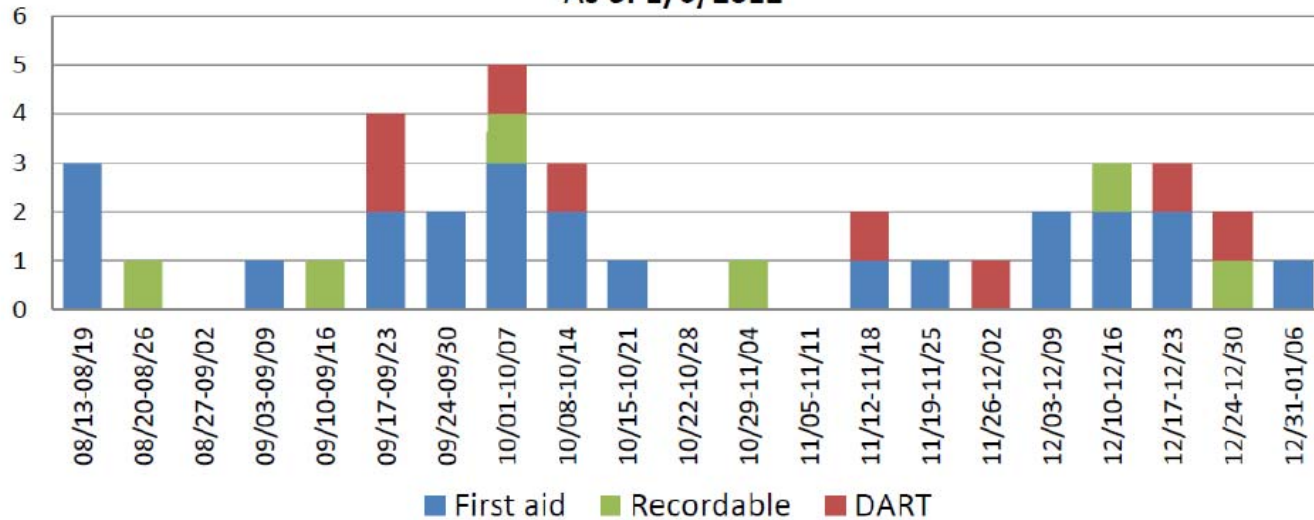
## 4. Tunnels now posted ODH0 - ODH web course needed to enter tunnels. Will become ODH1 on Jan.17 - will need ODH1 web course, medical clearance and survival pak hands on training after Jan. 1.

## 5. Safety Solution Proposals (S2) for FY2012 due by 1/30/12



## Injuries Per Week

As of 1/6/2012



### Injury Status:

FY12 YTD: DART – 6, TRC – 10, First Aid – 15  
 FY11: DART – 27, TRC – 42, First Aid – 45  
 FY10: DART – 19, TRC – 33, First Aid – 52

### Recent Injuries

1/5/12	First Aid	An employee reported to the OMC with a hand injury from moving 50# boxes of floor and ceiling tiles in Building 902. He received first aid and returned to normal work duties.
12/30/11	DART	An employee, working with a crew, was pushing a large unit and injured the lower leg. After examination at the OMC, the worker was sent off-site for evaluation and diagnostic testing. The employee is now losing time and is scheduled for surgery making this a DART.
12/27/11	Recordable	An employee was re-tested and found to have a recordable combined hearing loss of greater than 25 dBA in both ears.
12/20/11	DART	An employee was performing maintenance on vehicles and injured his back. This was reported to management and the OMC a week later. An investigation is in progress.

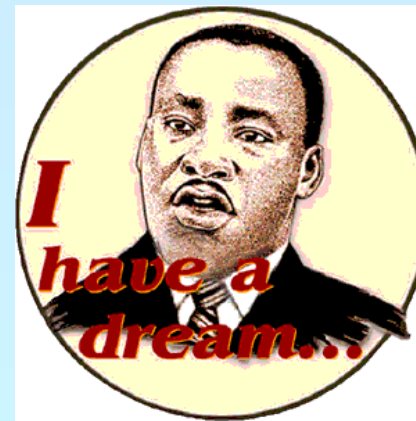
Recent Events		
1/6/12	Non-Reportable	A potential suspect/counterfeit item has been found on incoming storage ring magnets for NSLSII. The suspect items are bolts without the required head markings. Information regarding the pedigree and origin has been requested. The outcome is pending. It has been agreed upon that future magnets will only have bolts with proper marking. Replacement bolts will be provided, should replacements be deemed necessary after evaluation.
1/4/12	Non-Reportable	A Kubota leaked hydraulic fluid on pavement in front of the Fire House. The amount leaked was less than 1 gallon. The spill was immediately contained. The pavement has been cleaned and the offending material removed for disposal.

## Where To Find PHENIX Engineering Info

MLK Holiday  
Monday 1/16/12  
No work



*Go Giants!  
(much as it pains me to say it)*



I have a dream, that all  
detectors will work in harmony  
with each other and run 12 will  
be a complete success!

Links for the weekly planning meeting slides, archives of past meeting slides, long term planning, pictures, videos and other technical info can be found on the PHENIX Engineering web site:

[http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL\\_SSint-page.htm](http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm)

